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I. PRIMARY VENOUS DISEASE: SUPERFICIAL INCOMPETENCE

SAVING THE SAPHENOUS VEIN

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The extent of the problem. Pure, superficial, primary venous incompetence[15] may be present (without large varicosities) for several years as a preliminary, subclinical stage. The incompetence of the SFJ and of the LSF (documented by color duplex in the San Valentino epidemiological study, 20,000 patients, 10-year follow-up) may be present in some 9% of subjects ages 45 to 65[16] and simple, uncomplicated varicose veins varicose in some 6% of asymptomatic subjects of an European population. However, only a part of these subjects will be referred for diagnosis and treatment. The total absence of valves in the superficial venous system is a rare occurrence (i.e. never verified in the 20,000 subjects of the San Valentino study). Therefore most subjects (70%) with simple incompetence of the SFJ could theoretically be treated with selective correction of incompetence.

Surgery. Repair of incompetent femoral vein valves in subjects with primary valve incompetence has been developed by Kistner in 1968.[1] The original method involved a venotomy in the femoral vein with placement of sutures to shorten the vein cusps under direct vision. Variations of open valve repair have been reported by others.[2,3,4,5] More recently closed valvuloplasty has been developed by Kistner.[4] Variations of external valvuloplasty including the use of intraoperative angioscopy to visualise the effects of the external valvuloplasty has been developed by Gloviczki at the Mayo Clinic.[5] All these techniques were aimed to treat deep venous system problems. The surgical method involves complete dissection of the femoral vein for 4 to 10 cm in order to place sutures on both sides of the vein wall at the level of the valves commissures. A progressive dilatation of the femoral vein after months has been observed in some subjects and this has led to the placement of several types of nets or vein cuffs in order to contain such dilatation and keep the valve competent.[2,6] The progressive dilatation of the vein – causing recurrence of incompetence - may be possibly due to the dissection of the vein wall with destruction of vasa vasorum supply and innervation. The superficial venous system, when initially incompetent, has been also treated with external valvuloplasty with initial (6-8 months)[7,8] and long term (> 10 years) satisfactory results. The first randomized study on superficial veins valvuloplasty (long saphenous vein) was initiated in 1986 by our group and appeared for the first time in the medical literature 1989. Therefore the idea of treating in a conservative way the LSV and the relative surgical method are relatively new. In the same period a conservative way of treating superficial venous incompetence based on information given by color duplex (which became available for venous evaluation in that period) were developed[9,10] and documented by long-term (5 years) randomized, controlled studies. The randomized, controlled study on the correction of superficial venous incompetence using SFJ valvuloplasty and selective LSV repair indicated a very important potential application of non-destructive superficial venous surgery.[11] In this period external valvuloplasty was also attempted in a limited number of patients with superficial venous incompetence, dilated but not varicose veins.[12] A randomized pilot study was also conducted using an external Gore-tex patch applied in tubular shape at the proximal part of the SFJ.[12] The control treatment was simple, proximal ligation of the SFJ. No complications were observed in all 28 cases treated. Complete correction of venous incompetence was achieved in 21 cases and partial correction in 5. Competence persisting was still present after 6 years. Also no significant reaction to the Gore-tex patch or infection were observed in the following 6 years.

In the following years a few reports have indicated that external valvuloplasty of the deep venous system too are effective in reducing and controlling both superficial and venous incompetence[13,14] even in protracted follow-up (>3 years).

Data on file from our group (the study is still in progress with the aim to achieve 20-year follow-up before review of data) indicate that long-lasting, effective competence of the superficial and deep venous systems may be achieved both after external valvuloplasty or by placing an external vein support (i.e. Gore-tex patch or tubular graft cut and sutured according to the vein shape) systems. However, longer studies are needed to confirm the possibilities, limits and potential clinical applications of non-destructive venous surgery.

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Table: WHY TO SAVE THE LONG SAPHENOUS VEIN?

1. In case of DVT less complications (edema, ulcerations, etc.)
2. No obstruction (outflow is better saving the vein)
3. The vein may be useful as a graft
4. Lower costs
5. Noninvasive tests tell you precise sites of incompetence. You do not need to destroy the whole vein.
6. It is physiologically better to correct incompetence more than system destruction.
7. To save the integration between the deep and superficial system (which is a single, composite system) is important for long term outcome.

AMBULATORY VENOUS SURGERY VERSUS SCLEROTHERAPY

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Great advances have occurred in recent years in venous surgery that have allowed us to perform a walk-in walk-out type of surgery now called ambulatory vein surgery. The development of this type of surgery is at different levels throughout the world and has doctors of different specialties involved in it, including physicians, surgeons and sclerotherapists.

Sclerotherapy over the last few years has also made tremendous advances principally more and/or better solutions or sclerosants available in various countries, more research into the scientific basis for sclerotherapy, better or more convenient methods of compression, and better placement of needles into veins using duplex ultrasound.

When comparing and contrasting these two methods of treating varicose veins I think we have to compare ideal ambulatory venous surgery done with good anaesthesia, minimal access incisions, hook phlebectomy, and compression, with ideal sclerotherapy using what we think is the best sclerosant, of course using the best techniques and achieving good compression for an adequate period of time with minimal patient discomfort. Both of these techniques therefore will produce good results and hopefully the best possible result.

In years past, surgeons performed traditional major varicose vein surgery in hospital and this was quite an ordeal for the patient. Surgeons soon learned that less radical, better tailored operations using new techniques of minimal access would enable the patient to be out of hospital quicker and back to work earlier with far less morbidity. This progressed to the use of local anaesthesia and hook phlebectomy, so that a lot of this surgery is now done in the rooms.

Traditional European sclerotherapists held a strong view that all types of varicose veins could simply be treated by repeated and extensive courses of sclerotherapy. The dedicated sclerotherapists are divided in their opinion as to the wisdom of this approach. Many have seen the wisdom of surgical removal of large varicose veins, which produced a more effective and long lasting result and with the advent of hook phlebectomy followed by compression sclerotherapy, better and more long lasting results were produced. Some sclerotherapists, however, armed with duplex scanning for placement of needles in bigger and bigger veins, have been seduced into believing that injection of large volumes of high concentration sclerosants into the saphenous trunks would produce just as effective a result as surgical removal of the vein. This has prompted a push in some sections for routine ultrasound guided placement of needles and sclerotherapy for even the most major of varicose veins cases.

Ambulatory venous surgery can be done under general anaesthesia, in a day surgery centre or licensed operating room. The patient is in "hospital" usually for about four hours, there is no restriction on the extent of vein surgery performed, including high ligation of the long saphenous or short saphenous veins, stripping, ligation of perforators and multiple phlebectomy. This is still the recommended treatment by surgeons, particularly vein surgeons, in patients suffering from major upstream incompetence. Ambulatory venous surgery under local anaesthesia can be performed in an office setting, either in your consulting room or procedures room. This would basically involve multiple small stabs along the leg and hook phlebectomy of segments of the saphenous trunks, large saphenous tributaries or large reticular veins. It would not involve saphenofemoral or saphenopopliteal ligation or stripping. This is the major form of ambulatory venous surgery that I wish to compare with sclerotherapy.

If the good quality venous incompetence duplex scan that you have ordered or performed on your varicose veins patient shows major upstream incompetence I still believe that the four hours in hospital, general anaesthesia, doing as much as you can to remove those veins surgically, with the patient going home later on that day, but perhaps having some days off work is the best way to proceed in our Australian medical environment. If a patient presents, however, with segmental saphenous vein incompetence, saphenous tributary disease, or with early residual or recurrent varicose veins then the office setting under local anaesthesia is ideal for removing the raised palpable veins and then following this up with sclerotherapy for what is left. This procedure under local anaesthetic is ideal for raised tributaries over bony prominences, such as over the patella or the front of the shin or ankle, or across flexures such as in the popliteal fossa, or for more proximal veins high on the thigh.

Let us now turn to ideal sclerotherapy. There is no doubt that